Stormwater BMP - Residential/Urban	Sediment Removal Efficiency (%)	Bacteria Removal Efficiency (%)	Cost (per acre treated unless otherwise noted)	Efficiency Source	Cost Source
Rooftop Disconnection	50%	N/A	$100 per downspout	Virginia Stormwater Management Handbook	Virginia Cooperative Extension (pubs.ext.vt.edu/426/426-120/426-120_pdf.pdf)
Vegetated Roof	70%	N/A	$10-20 per ft2	Virginia Stormwater Management Handbook	US EPA
Permeable Pavement	80%	N/A	$7.50 per square foot	Virginia Stormwater Management Handbook	Center for Watershed Protection Urban Stormwater Retrofit Practices
Infiltration Trench	75%	90%	$6,000	TSS - Virginia Stormwater Management Handbook; Bacteria - US EPA	James River IP
Bioretention	70%	90%	$10,000	TSS - Virginia Stormwater Management Handbook; Bacteria - US EPA	Cooks Creek and Blacks Run IP
Rain Gardens	70%	70%	$5,000	Hunt, William F, Jonathan T Smith, and Jon Hathaway. City of Charlotte Pilot BMP Monitoring Program , Mal Marshall Bioretention Final Monitoring Report. City of Charlotte, 2007.	Cooks Creek and Blacks Run IP
Dry Swale	65%	0%	$18,150	Virginia Stormwater Management Handbook	Center for Watershed Protection Urban Stormwater Retrofit Practices
Wet Swale	40%	0%	$18,150	Virginia Stormwater Management Handbook	Center for Watershed Protection Urban Stormwater Retrofit Practices
Filtering Practice	60%	35%	$58,100	Virginia Stormwater Management Handbook	Center for Watershed Protection Urban Stormwater Retrofit Practices
Constructed Wetland	50%	80%	$2,900	Virginia Stormwater Management Handbook	Center for Watershed Protection Urban Stormwater Retrofit Practices
Streambank Stabilization	25.5 lbs/ft/year	N/A	$75 (per linear foot)	VA Spout Run TMDL IP	
Manufactured BMPs	80%	80%	$20,000	VA Spout Run TMDL IP	VA Spout Run TMDL IP
Wet Pond	50%	70%	$8,350	Virginia Stormwater Management Handbook	Center for Watershed Protection Urban Stormwater Retrofit Practices
Detention Pond	50%	30%	$3,800	Virginia Stormwater Management Handbook	Center for Watershed Protection Urban Stormwater Retrofit Practices
Riparian Buffer: Forest	70%	57%	$3,500		Moores Creek IP
Riparian Buffer: Grass/Shrub	50%	50%	$360		Blacks Run and Cooks Creek TMDL IP (2006)
Street Sweeping	31%	2%	$40 per curb mile	Bacteria - Zarriello, P.J., Breault, R.F., and Weiskel, P.K., 2003, Potential Effects of Structural Controls and Street Sweeping on Stormwater Loads to the Lower Charles River, Massachusetts: U.S. Geological Survey Water-Resources Investigations Report 02-4220, 48 p.; Sediment - Deriving Reliable Pollutant Removal Rates for Municipal Street Sweeping and Storm Drain Cleanout Programs in the Chesapeake Bay Basin	Schilling, J.G. 2005. Street Sweeping – Report No. 1, State of the Practice. Prepared for Ramsey- Washington Metro Watershed District (http://www.rwmwd.org). North St. Paul, Minnesota. June 2005.
Stream Restoration	310 lbs/ft/year	N/A	$300	Stakeholder Input	Stakeholder Input ($250-300 (per linear foot))

Residential BMP - Straight Pipes & Septic Systems	Sediment Removal Efficiency (%)	Bacteria Removal Efficiency (%)	Cost	Efficiency Source	Cost Source
Septic System Pump-Out (RB-1)	N/A	5%	$300	Virginia DCR TMDL IP Manual	Virginia Agricultural BMP Database (Average of Upper Roanoke BMPs)
Repaired Septic System (RB-3)	N/A	100%	$3,600	Removal Efficiency is defined by practice	Virginia Agricultural BMP Database (Average of Upper Roanoke BMPs)
Septic System Installation/Replacement (RB-4)	N/A	100%	$6,000	Removal Efficiency is defined by practice	Virginia Agricultural BMP Database (Average of Upper Roanoke BMPs)
Alternative Waste Treatment System Installation (RB-5)	N/A	100%	$16,000	Removal Efficiency is defined by practice	Virginia Agricultural BMP Database (Average of Upper Roanoke BMPs)
Sewer Connection (RB-2)	N/A	100%	$10,000	Removal Efficiency is defined by practice	Western Virginia Water Authority
Pet Waste Composter/Digester	N/A	99%	$50	Removal Efficiency is defined by practice	http://www.petsolutions.com/C/Dog-Lawn-Care/I/Doggie-Dooley-Model-3000.aspx
Pet Waste Management Program	N/A	25%	$3,750	Swann, C. 1999. A survey of residential nutrient behaviors in the Chesapeake Bay. Widener Burrows, Inc. Chesapeake Bay Research Consortium. Center for Watershed Protection. Ellicott City, MD. 112pp.	South Christians TMDL Implementation Plan

Agricultural BMP - Pasture	Sediment Removal Efficiency (%)	Bacteria Removal Efficiency (%)	Cost (per unit)	Efficiency Source	Cost Source
CREP Livestock Exclusion (CRSL-6)	56	100	$19,000	Moores Creek IP (Sediment), Removal Efficiency is defined by practice (Bacteria)	Virginia Agricultural BMP Database (Average of Upper Roanoke BMPs)
Livestock Exclusion with Grazing Land Management for TMDL IP (SL-6T)	56	100	$21,000	Moores Creek IP (Sediment), Removal Efficiency is defined by practice (Bacteria)	Virginia Agricultural BMP Database (Average of Upper Roanoke BMPs)
Small Acreage Grazing System (SL-6AT)	56	100	$9,000	Moores Creek IP (Sediment), Removal Efficiency is defined by practice (Bacteria)	*Smith-Mayo IP
Livestock Exclusion with Riparian Buffers (LE-1T)	56	100	$25,000	Moores Creek IP (Sediment), Removal Efficiency is defined by practice (Bacteria)	*Smith-Mayo IP
Livestock Exclusion with Reduced Setback (LE-2T)	56	100	$17,000	Moores Creek IP (Sediment), Removal Efficiency is defined by practice (Bacteria)	*Smith-Mayo IP
Streambank Stabilization (WP-2A)	25.5 lbs/ft/year	NA	$100	Nonpoint Source BMPS approved for Phase 5.0 of the Chesapeake Bay Program Watershed Revised 1/18/06.	Virginia Agricultural BMP Database (Average of Upper Roanoke BMPs)
Stream Protection/Fencing (WP-2T)	56%	100%	$21,000	Moores Creek IP (Sediment), Removal Efficiency is defined by practice (Bacteria)	Virginia Agricultural BMP Database (Average of Upper Roanoke BMPs)
Riparian Buffer: Forest	70%	57%	$1,750 (per acre)	Virginia TMDL IP Manual	Virginia Agricultural BMP Database (Average of Upper Roanoke BMPs)
Riparian Buffer: Grass Filter Strips	50%	50%	$250 (per acre)		Virginia Agricultural BMP Database
Manure Storage (WP-4) - Dairy	NA	80%	$100,000	VirginiaTMDL IP Manual	Virginia Agricultural BMP Database
Manure Storage (WP-4) - Beef	NA	80%	$58,000	Virginia TMDL IP Manual	Virginia Agricultural BMP Database
Vegetative Cover on Critical Areas (SL-11)	75%	75%	$1,200		Virginia Agricultural BMP Database
Reforestation of Erodible Pasture (FR-1)	LU Conversion	LU Conversion	$560		Virginia Agricultural BMP Database
Pasture Management (EQIP 528, SL-10T)	30%	50%	$75	USEPA-CBP, Nonpoint Source Best Management Practices used in Scenario Builder for Phase 5.0 of Chesapeake Bay Watershed Model	NRCS and DCR incentive based practices

Agricultural BMP - Cropland	Sediment Removal Efficiency (%)	Bacteria Removal Efficiency (%)	Cost (per unit)	Efficiency Source	Cost Source
Continuous No-Till (SL-15)	70%	70%	$100	Virginia TMDL IP Manual (Bacteria based on Sediment Reduction - same methodology in South Christians IP)	Virginia Agricultural BMP Database (Average of Upper Roanoke BMPs)
Small Grain Cover Crop (SL-8)	20%	20%	$30	Nonpoint Source BMPS approved for Phase 5.0 of the Chesapeake Bay Program Watershed Revised 1/18/06.	Virginia Agricultural BMP Database (Average of Upper Roanoke BMPs)
Permanent vegetative cover on cropland (SL-1)	75%	75%	$175		Virginia Agricultural BMP Database
Sod Waterway (WP-3)	50%	50%	$1,600	Virginia DCR TMDL IP Manaual	Virginia Agricultural BMP Database
Cropland Buffer/Field Borders (CP-33 and WQ-1)	50%	50%	$600	Virginia DCR TMDL IP Manual	